

Customer No.: 31561
Docket No.: 12531-US-PA
Application No.: 10/709,262

In the Claims:

Please amend the claims according to the following listing of claims and substitute it for all prior versions and listings of claims in the application.

Claim 1 (currently amended) A position detecting circuit for a touch pad, said touch pad including a sensing pad and a sensing pen, the position detecting circuit comprising:

a waveform generator, for generating an input signal, wherein said input signal is capable of gradually moving a position of a zero voltage on said sensing pad in a predetermined direction;

a filter, for receiving a sensing signal sensed by said sensing pen, and filtering and outputting said sensing signal;

an amplifier, coupled to said filter, for receiving and amplifying said filtered sensing signal;

an envelope detector, coupled to said amplifier, for detecting said filtered-amplified sensing signal and generating an envelope signal;

a zero voltage detector, coupled to said envelope detector, for receiving said envelope signal and generating an output signal, wherein said output signal is capable of determining as to when a zero voltage occurs; and

a controller, coupled to said waveform generator and said zero voltage detector, for controlling said waveform generator to generate said input signal and determining a position of said sensing pen on said sensing pad responsive to said output signal from said zero voltage detector,

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wherein said position of said zero voltage moves back and forth in said predetermined direction.

Claim 2 (original) The circuit of claim 1, further comprising a multiplexer for switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

Claim 3 (original) The circuit of claim 1, wherein said waveform generator includes two digital-to-analog converters.

Claim 4 (canceled)

Claim 5 (original) The circuit of claim 1, wherein said zero voltage detector is a comparator.

Claim 6 (currently amended) A position detecting method for a touch pad, said touch pad including a sensing pad and a sensing pen, the method comprising:

inputting an input signal, wherein said input signal is capable of gradually moving a position of a zero voltage on said sensing pad in a predetermined direction; and

determining a position of said sensing pen on said sensing pad based on a timing when a zero voltage of a sensing signal of said sensing pen occurs,

wherein said position of said zero voltage moves back and forth in said predetermined direction.

Claim 7 (original) The method of claim 6, further comprising switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

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Claim 8 (canceled)

Claim 9 (original) A touch pad, comprising:

a sensing pad;

a sensing pen;

a waveform generator, for generating an input signal, wherein said input signal is capable of moving a position of a zero voltage on said sensing pad in a predetermined direction gradually;

a filter, for receiving a sensing signal sensed by said sensing pen, filtering and outputting said sensing signal;

an amplifier, coupled to said filter, for receiving and amplifying said filtered sensing signal;

an envelope detector, coupled to said amplifier, for detecting said filtered-amplified sensing signal and generating an envelope signal;

a zero voltage detector, coupled to said envelope detector, for receiving said envelope signal and generating an output signal, wherein said output signal is capable of determining as to when a zero voltage occurs; and

a controller, coupled to said waveform generator and said zero voltage detector, for controlling said waveform generator to generate said input signal and determining a position of said sensing pen on said sensing pad responsive to said output signal from said zero voltage detector,

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wherein said position of said zero voltage moves back and forth in said predetermined direction.

Claims 10 (original) The touch pad of claim 9, further comprising a multiplexer for switch-inputting said input signal between a horizontal direction and a vertical direction of said sensing pad.

Claim 11 (original) The touch pad of claim 9, wherein said waveform generator includes two digital-to-analog converters.

Claim 12 (canceled)

Claim 13 (original) The touch pad of claim 9, wherein said zero voltage detector is a comparator.